

**REPLACED BY
ART 34 AMDT.**

It is an object of the present invention to provide a refrigerating apparatus suitable for chilling objects rapidly.

The invention provides refrigerating apparatus for chilling an object, the refrigerating apparatus comprising a chamber having a longitudinal axis, an inlet and an outlet spaced along the longitudinal axis, the refrigerating apparatus further comprising means for generating a fluid flow, characterised in that rotation means are provided for causing the fluid flow to follow a helical path about the longitudinal axis within the chamber between the inlet and the outlet. In this configuration, there is an increase in the contact time between the fluid flow and the object. Therefore, heat transfer is more efficient which leads to a reduction in the time taken to chill the object.

Preferably the inlet is arranged tangential to the chamber so as to cause the fluid flow to follow a helical path about the longitudinal axis within the chamber. Provision of the tangential inlet ensures helical fluid about the object which maximises the contact time during which heat transfer occurs.

Preferably a support is provided for supporting the object spaced from a wall of the chamber. The support ensures that the object is placed in the chamber in an optimum position for heat transfer.

In a preferred embodiment, the apparatus comprises a plurality of chambers, each chamber being dimensioned so as to house an object to be chilled. It is an advantage to be able to chill a number of objects simultaneously. This is particularly suitable for use in, for example, restaurants where it is desirable to have a large number of alternative beverages available on demand.

The invention further provides a method of chilling an object, comprising the steps of:

- a) placing an object to be chilled in a chamber having a longitudinal axis, an inlet and an outlet spaced along the longitudinal axis;
- b) introducing a fluid flow to the inlet of the chamber;

Claims

1. Refrigerating apparatus for chilling an object, the refrigerating apparatus comprising a chamber having a longitudinal axis, an inlet and an outlet spaced along the longitudinal axis, the refrigerating apparatus further comprising means for generating a fluid flow, characterised in that rotation means are provided for causing the fluid flow to follow a helical path about the longitudinal axis within the chamber between the inlet and the outlet.
- 10 2. Refrigerating apparatus as claimed in claim 1, wherein the inlet is arranged tangential to the chamber so as to cause the fluid flow to follow a helical path about the longitudinal axis within the chamber.
- 15 3. Refrigerating apparatus as claimed in claims 1 or 2, wherein the outlet is arranged tangential to the chamber.
4. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the chamber is cylindrical.
- 20 5. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the longitudinal axis is substantially vertical.
6. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the inlet and the outlet are at opposite ends of the chamber.
- 25 7. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the fluid flow is a chilled airflow.
- 30 8. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the means for generating the fluid flow comprises a fan and an evaporator, the evaporator housing a refrigerant.

9. Refrigerating apparatus as claimed in claim 8, wherein the outlet is arranged so as to pass the fluid flow to the evaporator for recirculation.

5 10. Refrigerating apparatus as claimed in any one of the preceding claims, wherein a support is provided for supporting the object spaced from a wall of the chamber.

11. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the chamber is dimensioned so as to hold a bottle of wine.

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12. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the apparatus forms part of a refrigerator.

13. Refrigerating apparatus as claimed in any one of the preceding claims, wherein the 15 apparatus comprises a plurality of chambers, each chamber being dimensioned so as to house an object to be chilled.

14. Refrigerating apparatus substantially as hereinbefore described with reference to any one of the embodiments shown in the accompanying drawings.

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15. A method of chilling an object, comprising the steps of:

- a) placing an object to be chilled in a chamber having a longitudinal axis, an inlet and an outlet spaced along the longitudinal axis;
- b) introducing a fluid flow to the inlet of the chamber;
- c) causing the fluid flow to follow a helical path about the longitudinal axis and around the object to be chilled;

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- d) allowing the fluid flow to exit the chamber via the outlet.

30 16. A method of chilling an object as claimed in claim 15, wherein the fluid flow is introduced tangentially to the chamber.

17. A method of chilling an object as claimed in claim 15 or 16, wherein the fluid flow passes at least twice around the object before being allowed to exit the chamber.

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18. A method of chilling an object as claimed in any one of claims 15 to 17, wherein the fluid flow is caused to flow between a wall of the chamber and a support on which the object is placed.

10 19. A method of chilling an object as claimed in any one of claims 15 to 18, wherein the fluid flow is chilled prior to entry into the chamber.

20. A method of chilling an object as claimed in claim 19, wherein the fluid flow is passed through an evaporator.

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21. A method of chilling an object as claimed in claim 20, wherein the fluid flow is returned to the evaporator for rechilling after exiting the chamber via the outlet.

22. A method of chilling an object as claimed in claim 21, wherein the rechilled fluid
20 flow is introduced to the inlet of the chamber.

23. A method of chilling an object substantially as hereinbefore described with reference to any one of the embodiments shown in the accompanying drawings.

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